



## **Collection of Beryllium Data at AWE Aldermaston**

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# **BERYLLIUM FACILITY**

- Introduction
  - The Be facility consists of a large machine shop, a metallography suite, inspection bays and waste processing facilities. Attached to the processing areas are offices, messing areas and conference rooms.
- Rekit activities
  - The Be facility has recently completed a large rekit programme which included the installation of new machine tools within the workplace.

# Data collected

- Four data fields;
  - Personal Air Sampling (PAS) – individuals.
  - Static Air Sampling (SAS) – work areas.
  - Smear sampling – surfaces.
  - Stack sampling – discharge to the environment.

# Personal Air Sampling



- Casella pump is used which pulls 2lt per minute through a PAS head holding a 25mm diameter Whatman Grade 41 cellulose filter paper
- Each head is emptied at the end of every working day by Health Physics and sent to the analytical labs
- The facility has a service level agreement with the analytical labs to return results around within a prescribed period of time

# Static Air Sampling (SAS)



- Pumps run 24 hours a day.
- Pumps draw 60lt/pm air through a 60mm diameter Whatman grade 41 cellulose filter paper.
- Pumps changed on a periodic basis dependent upon location and activity

# Smear Sampling



- Smears taken to demonstrate that the inadvertent spread of Be contamination is not taking place.
- The facility uses 60mm diameter Whatman grade 41 cellulose filter paper.
- AWE standards for surface contamination limits are as follows:
  - Controlled area  $50\mu\text{g}/\text{m}^2$  ( $5\mu\text{g}/1000\text{cm}^2$ )
  - Non controlled area  $10\mu\text{g}/\text{m}^2$  ( $1\mu\text{g}/1000\text{cm}^2$ )
    - $1000\text{cm}^2$  is approximately equal to  $1\text{ft}^2$

# Stack Sampling



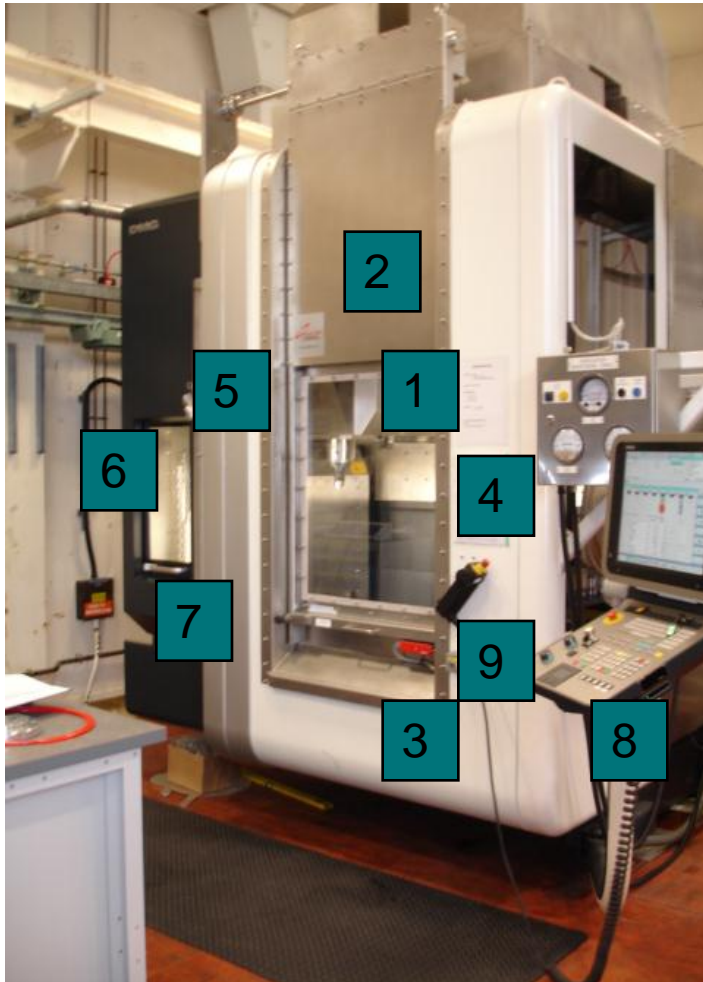
- Stack Monitoring – this is a regulatory requirement based on the Environmental Permit
- Air is drawn through at 50lt/min
- The facility uses 3.4cm GE Healthcare grade GF/A filters
- Changed weekly



# Commissioning New Equipment

- The Rekit Project procured new machine tools for the facility.
- In order to demonstrate their effectiveness at containing Be particulate and managing personnel exposure, a series of machining trials took place in parallel with a focussed IH regime.
- This included:
  - Investigation air sampling around the machine
  - Dedicated PAS samples
  - Smear surveys of pre identified locations around the machine tool.

# Photographs of the Machine Tools



## Justification for Use

- This activity was performed across two months which encompassed a number of agreed jobs to challenge the machine tool's HVAC system.
- The evidence gathered was used to commission the machine tools for use with Be

# Summary

- The Be facility utilises a number of techniques to gather data in order to ensure that both personnel and the environment are protected.
- Any breaches of normal operating levels are investigated immediately and appropriate actions put in place to allow normal operations to continue.